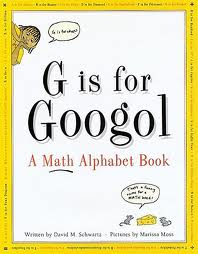
**Academic Resources for Teachers and Students:**

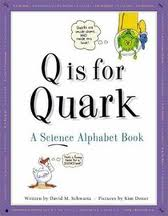
**Alternative Texts in Math and Science**

BOOKS

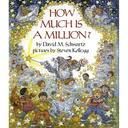
**G is for Googol: A Math Alphabet Book** *by David Schwartz*

B is for Binary, F is for Fibonacci, P is for Probability... even a small sample begins to give you the idea that this is a math book unlike any other. Ranging freely from exponents to light-years to numbers found in nature, this smorgasbord of math concepts and trivia makes a perfect classroom companion or gift book for the budding young mathematician at home. Even the most reluctant math student will be drawn in by the author's trademark wit, Marissa Moss's quirky illustrations and funny captions, and the answers revealed in W is for " When are we ever gonna use this stuff, anyway?"

**Q is for Quark: A Science Alphabet Book** *by David Schwartz*

A is for Atom, B is for Black Hole, C is for Clone-hang on to your test tubes, we're covering a lot of ground here! But both the science-curious and the science-phobic are in for a treat as the author of one of the wittiest math books around takes on a new topic. Ranging freely from DNA to jet-propelled squid to proof that it's best to prepare dragon tonic using the metric system, this smorgasbord of science topics makes a great classroom resource or gift for the budding scientist. By the time kids plow through all the quirky pictures and funny captions we're sure they'll agree that W is for Wow!

**How Much is a Million?** *by David Schwartz*

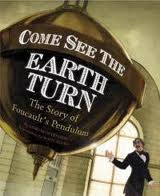
An attempt to help children conceptualize the immensity of numbers is aided immeasurably by the artist's jovial, detailed, whimsical illustrations. Marvelosissimo the Mathematical Magician demonstrates the meaning of a million by showing his four young friends (plus two cats, a dog, and a unicorn) that it would take twenty-three days to even count to a million and that a goldfish bowl large enough to hold a million goldfish could hold a whale. The author concludes with several pages of the mathematical calculations which support his examples, very clearly and humorously explained.

**Fidgeting Fat, Exploding Meat & Gobbling Whirly Birds and Other Delicious Science Moments**

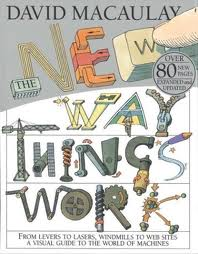
* by Karl Kruszelnicki*

Do our ears get bigger as we grow older? Can you really lose weight just by fidgeting? Why do cats survive 32-story falls better than 8-story ones? Now you can find the fascinating answers to these and other profound science questions . . . all in one highly entertaining, fact-packed volume! A perfect blend of solid research and wacky humor, this book is crammed with captivating and obscure facts.

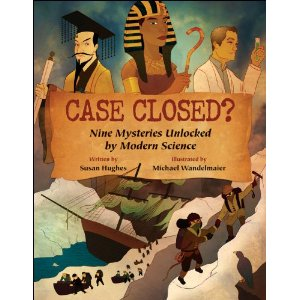
**Come See the Earth Turn** *by Lori Mortensen*

 A sickly child, a poor student, and a medical school dropout, Léon Foucault seemed an unlikely candidate for greatness. But his ingenious experiment—simple, beautiful, and stunningly original—changed how we see the world. Scientists knew that the earth turned on its axis. But how could they *prove* it? Countless experiments had been tried . . . and had failed. Then, one historic day in Paris, Léon Foucault gave a magnificent demonstration that offered the proof everyone had been looking for.

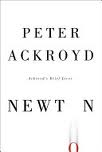
**The New Way Things Work** *by David Macaulay*

The information age is upon us, baffling us with thousands of complicated state-of-the-art technologies. With an entirely new section that guides us through the complicated world of digital machinery, where masses of electronic information can be squeezed onto a single tiny microchip, this revised edition embraces all of the newest developments, from cars to watches.

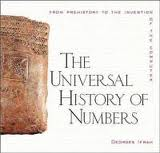
**Case Closed? Nine Mysteries Unlocked by Modern Science** *by Susan Hughes*

Egypt's first female pharaoh disappears around 1457 BCE -- was she murdered? Find out how DNA closes the case. The ancient Arabian Peninsula city of Ubar vanishes, seemingly without trace. Find out how old maps and modern space shuttles help solve the mystery. Sir John Franklin's 1845 expedition to find the Northwest Passage is never heard from again. Find out how spectroscopy points to some probable explanations. Case Closed? examines these and six other mysteries from ancient and modern times. Accompanied by photos, maps, diagrams and illustrations, this book reveals how modern science sheds new light on solved mysteries. In other cases, readers can examine the latest evidence and decide for themselves.

**Newton** *by Peter Ackroyd*

When Newton was not yet twenty-five years old, he formulated calculus, hit upon the idea of gravity, and discovered that white light was made up of all the colors of the spectrum. By 1678, Newton designed a telescope to study the movement of the planets and published *Principia*, a milestone in the history of science, which set forth his famous laws of motion and universal gravitation. Newton’s long-time research on calculus, finally made public in 1704, triggered a heated controversy as European scientists accused him of plagiarizing the work of the German scientist Gottfried Leibniz. Bestselling author Peter Ackroyd provides an engaging portrait of Isaac Newton, illuminating what we think we know about him and describing his seminal contributions to science and mathematics.

**The Universal History of Numbers** *by Georges Ifrah*

A riveting history of counting and calculating from the time of the cave dwellers to the late twentieth century, this book is the first complete account of the invention and evolution of numbers the world over. As different cultures around the globe struggled with problems of harvests, constructing buildings, educating their citizens, and exploring the wonders of science, each civilization created its own unique and wonderful mathematical system. Dubbed the "Indiana Jones of numbers," Georges Ifrah traveled all over the world for ten years to uncover the little-known details of this amazing story.

**Flatland: A Romance of Many Dimensions** < <http://www.geom.uiuc.edu/~banchoff/Flatland/> >

This satirical novella written in 1884 by Edwin Abbott is a timeless social commentary about social class, gender roles, and resistance to change. The narrator is a Square who lives in a two-dimensional world (Flatland), dreams of a other-dimension worlds (Lineland and Pointland), and is shown Spaceland by a visiting Sphere. This book is for more advanced readers who can read between the lines of olde English and want to explore ideas of other dimensions and the pervasiveness of social hierarchies and the resistance to new ideas.

ONLINE

**Mr. Parr Science Music Videos** < <http://www.youtube.com/user/ParrMr> >

Mr. Parr has created many music videos with science lyrics. They are set to modern songs and are a lot of fun!

**Exercises in Math Readiness** < <http://math.usask.ca/emr/menu.html> >

Need some practice on the basics of algebra, geometry, trigonometry, or functions? The Department of Math/Stats at the University of Saskatchewan have put together practice problems of several difficulty levels (solutions with explanations are included).

**National Library of Virtual Manipulatives** < <http://nlvm.usu.edu/> >

The National Library of Virtual Manipulatives (NLVM) is an NSF supported project that began in 1999 to develop a library of uniquely interactive, web-based virtual manipulatives or concept tutorials, mostly in the form of Java applets, for mathematics instruction (K-12 emphasis). Mathematics is not, as has been said, a spectator sport. Great for classroom instruction or self-teaching at home.

**Free Math Worksheets** < <http://www.math-worksheet.org/> >

The title is self-explanatory – this site has hundreds of ready-to-print worksheets (and answer keys) for the busy math teacher who doesn’t have time to think up algorithmic skill practice problems.

**Weather Wiz Kids** < <http://www.weatherwizkids.com/> >

**Exploring Weather** < <http://www.exploringweather.com/> >

Both of these sites were developed by meteorologist Crystal Wicker. In her own words: “I designed this website especially for kids to allow them to learn more about the fascinating world of weather. It’s also a wonderful educational website for teachers and parents to give them the right tools to explain the different types of weather to children.” A favorite place for do-it-yourself experiments.

**National Weather Service** < <http://weather.gov/> >

This official site goes beyond the 5-day forecast. This is a reliable source for detailed weather data anywhere in the United States. Look at satellite imagery, read/see multiple day forecasts, receive weather warnings, etc. Also, don’t forget to check out the Education/Outreach tab for more resources.

< <http://www.nws.noaa.gov/education.php> >

**Science Buddies**  < <http://www.sciencebuddies.org/> >

Need ideas for a science fair project? This site has over 1,000 project ideas in a wide variety of areas.

**NASA** < <http://www.nasa.gov/> >

Whether you want to be a scientist up in space or down on Earth, this website has plenty of ways to learn science and become involved in a cutting-edge science community. The National Aeronautics and Space Administration (NASA) is the agency of the [United States government](http://en.wikipedia.org/wiki/Federal_government_of_the_United_States) that is responsible for the nation's civilian [space program](http://en.wikipedia.org/wiki/List_of_space_agencies) and for [aeronautics](http://en.wikipedia.org/wiki/Aeronautics) and [aerospace](http://en.wikipedia.org/wiki/Aerospace) research. Stay current with all the latest news of aeronautics, space exploration, low-gravity experiments, and much more!

MOVIES

*Here are 3 videos that purport different viewpoints of the heated topic of global warming (pun intended).*

**An Inconvenient Truth**, movie

This documentary is about former [United States Vice President](http://en.wikipedia.org/wiki/Vice_President_of_the_United_States) [Al Gore](http://en.wikipedia.org/wiki/Al_Gore)'s campaign to educate citizens about [global warming](http://en.wikipedia.org/wiki/Global_warming) via a comprehensive slide show that, by his own estimate, he has given more than a thousand times. The film won the Academy Award in 2007 for Best Documentary Feature. This movie helped the issue of global warming and carbon footprints gain momentum all over the world.

**The Great Global Warming Swindle**, movie, watch: <<http://www.youtube.com/watch?v=YtevF4B4RtQ>>

This documentary film suggests that the [scientific opinion on climate change](http://en.wikipedia.org/wiki/Scientific_opinion_on_climate_change) is influenced by funding and political factors, and questions whether scientific consensus on [anthropogenic](http://en.wikipedia.org/wiki/Human_impact_on_the_environment) [global warming](http://en.wikipedia.org/wiki/Global_warming) exists. The British-made film presents scientists, economists, politicians, writers, and others who dispute the [scientific consensus](http://en.wikipedia.org/wiki/Scientific_opinion_on_climate_change) regarding anthropogenic global warming. The program's publicity materials assert that man-made global warming is "a lie" and "the biggest scam of modern times."

**A Global Warning?**, movie by the History Channel

Arctic ice is melting, sea levels are rising, and glaciers are shrinking at alarming rates. And the Earth is getting unmistakably warmer. But is this vast, potentially catastrophic, climate change the result of human behavior? Or is it simply the Earth’s natural cycle of warming and cooling periods that have occurred since the planet formed? The History Channel offers an in-depth study of the science behind this controversial issue.

LEARNING COMMUNITY

**Khan Academy** < <http://www.khanacademy.org/> >

This suite of online video lectures and learning community has become famous world-wide. Students can watch a video (10-minutes or less) on a specific concept (be it algebra, physics, etc.) and follow up by answering questions about the concept. Teachers can monitor students’ progress, weak spots, and time spent online. Whether you commit to the points and intelligence badges is up to you – however you use this site, you will come away with a better understanding of the world around you.

**Knewton**, “an adaptive learning platform” < <http://www.knewton.com/> >

Knewton transforms standardized educational content into a personalized experience for each learner.

Colleges and universities are solving long-standing remediation problems with *Math Readiness for College™* and students across the globe are using the GMAT, LSAT, and SAT prep courses to get ready for test day.

INFORMATION ENGINES – RESOURCE BANK

**Wolfram|Alpha**, “a computational knowledge engine” < <http://www.wolframalpha.com/> >

Want to know what day of the week you were born on? Have a tricky integral that you can’t solve? Want to know the characteristics of a certain quark? Want to know the weather forecast for this weekend? Want to know more about a certain mineral? Want an alternative to Wikipedia? Wolfram|Alpha can provide information about any query.

**Maxima**, “a computer algebra system” – download at < <http://sourceforge.net/projects/maxima/files/> >

This is an open source, user-friendly, calculation software that is basic enough for students to use but powerful enough to handle college-level mathematics – including the following: differentiation, integration, Taylor series, Laplace transforms, ordinary differential equations, systems of linear equations, polynomials, and sets, lists, vectors, matrices, and tensors. Maxima can also plot functions and data in two and three dimensions.

**Geometer’s Sketchpad** download ($30) at < <http://dynamicgeometry.com/> >

A must for mathematics educators and students! Draw and manipulate circles and triangles with ease. Sketchpad is one of the most widely-used educational technologies for school mathematics in the world. Academic research has found that Sketchpad use has positive impact on student achievement, conceptual understanding, motivation and engagement. The National Council for Teachers of Mathematics' Standards explicitly recommends the use of Dynamic Geometry at several grade levels.

**Federal Resources for Educational Excellence** < <http://free.ed.gov/index.cfm> >

This is an extensive compilation of teaching and learning resources from federal agencies. This site is perfect for browsing more specific sites full of informational texts, data, and videos.

**Cool Tools for Schools** < <http://cooltoolsforschools.wikispaces.com/> >

This is a fabulous resource for teachers and students who want to expand their knowledge and use of technology tools. There are software tools for every occasion: presenting, collaborating, researching, filming, drawing, writing, music, organizing, mapping, surveying, graphing, and much more!

**NSTA Outstanding Science Trade Books for Students K-12** < <http://www.nsta.org/publications/ostb/> >

Reading science trade books is the perfect way for students to build literacy skills while learning science content. The books that appear in these lists were selected as outstanding children’s science trade books. They were chosen by a book review panel appointed by the National Science Teachers Association (NSTA) and assembled in cooperation with the Children’s Book Council (CBC).